Chapter VII – Regional Trends and Changes

Regional Trucking Trends

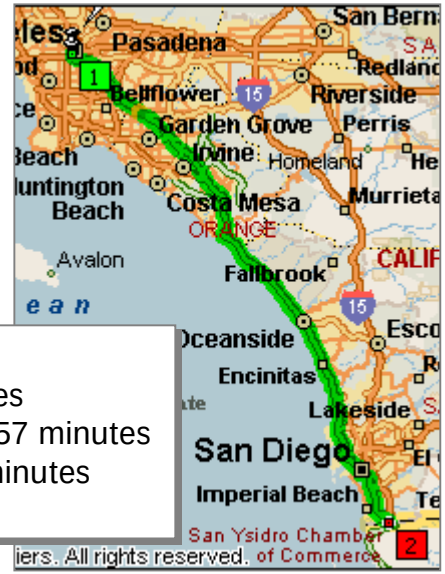
- Congestion affects operations and cost
  - Congestion adversely affects average speed, reliability, and predictability of truck service
  - In slower stop-and-go operations trucks are less efficient and incur higher fuel and maintenance costs for the same trip length
- Congestion adversely affects truck drivers
  - Long-haul drivers are paid by the mile, and congestion reduces their earnings potential
  - Intermodal drayage divers (owner-operators) are paid by the trip, so slower speeds reduce their daily earnings potential as well
  - Congestion and its adverse impacts exacerbate the truck driver shortage
- Environmental restrictions
  - Stricter current and future environmental standards in Southern California and the state as a whole raise trucking costs compared to other regions
  - “Clean” diesel fuel is more costly; truckers avoid filling up their tanks in California
  - Older, less costly equipment is less likely to pass inspection in California
  - Stricter emissions standards may eventually require truckers to operate separate equipment in California, complicating operations

Current Regional Trucking Costs

- The four examples here show representative regional trucking movements. Costs are estimated at $1.12 per mile, which is the rough current level.

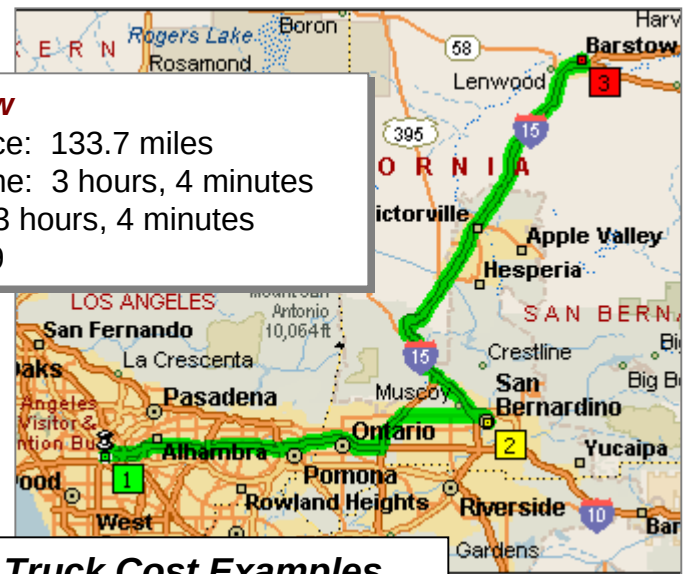
LA to Bakersfield

Driving distance: 111.6 miles
Total travel time: 2 hours, 18 minutes
Driving time: 2 hours, 18 minutes
Cost: $124.99



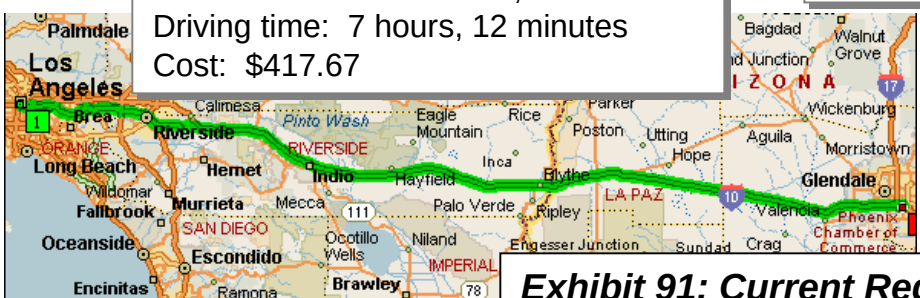
LA to Border

Driving distance: 136.2 miles
Total travel time: 2 hours, 57 minutes
Driving time: 2 hours, 57 minutes
Cost: $152.52



LA to Barstow

Driving distance: 133.7 miles
Total travel time: 3 hours, 4 minutes
Driving time: 3 hours, 4 minutes
Cost: $149.79



LA to Phoenix

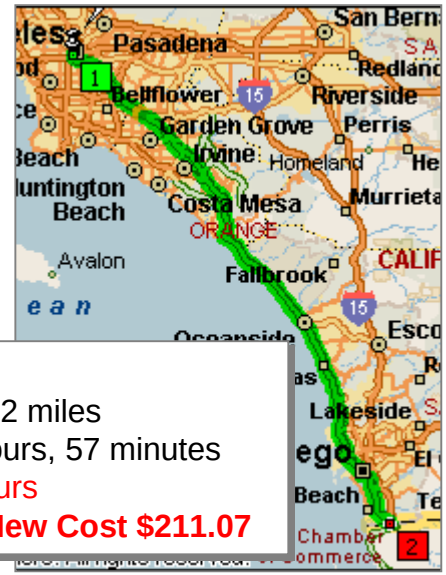
Driving distance: 372.9 miles
Total travel time: 7 hours, 12 minutes
Driving time: 7 hours, 12 minutes
Cost: $417.67

Exhibit 91: Current Regional Truck Cost Examples

Potential Congestion Impacts on Regional Trucking

- The study team developed estimates of driving time and cost under significantly increased highway congestion. Note that the cost per mile increase as speed drops to keep driver earnings at an acceptable level. For illustrative purposes costs were estimated at $1.55 per mile.

LA to Bakersfield
Driving distance: 111.6 miles
Base travel time: 2 hours, 18 minutes
New travel time: 4 hours, 36 minutes
Base Cost: $124.99; **New Cost $172.98**



LA to Border
Driving distance: 136.2 miles
Base travel time: 2 hours, 57 minutes
New travel time: 6 hours
Base Cost: $152.52; **New Cost $211.07**

LA to Phoenix
Driving distance: 372.9 miles
Base travel time: 7+ hours
New travel time: 14 hours, 30 minutes
Base Cost:$417.67; **New Cost $578.02**

LA to Barstow
Driving distance: 133.7 miles
Base travel time: 3 hours, 4 minutes
New travel time: 6 hours
Base Cost: $149.79; **New Cost $207.30**

Exhibit 92: Impacts of Congestion

Rail Business Development

Both BNSF and UP have strict operating and economic criteria for commencing new local service, continuing existing local service, and abandoning local service to local industry on their main and branch lines.

- Railroads are profit-motivated, as are all commercial carriers. They will seek and encourage short-haul or local traffic that seems likely to generate and adequate return on investment and on the marketing and management efforts involved. At a minimum, they seek a positive "contribution" – operating revenue above incremental operating expense.
- Railroads look at length of haul as a proxy for profitability: the longer the potential trip on their lines, the more likely they will be to pursue the opportunity.
- Railroads, with some justification, view the start-up of new services as much more costly, and therefore a higher threshold to pass, than adding traffic to existing services. Thus, they are more likely to seek additional traffic within their current operations plan than encourage traffic growth that will require new "train starts".

What service a railroad elects to provide is the single most critical aspect of understanding the potential for modal shift from truck to rail service. This is a complex issue. It varies with each railroad, each commercial opportunity, and over time as opportunities evolve.

- Long-haul moves are the preferred shipments for railroads, particularly if some other party will provide capital for the necessary attendant terminal/transload facilities and the fleet of cars in the unit train.
- Railroads favor long haul traffic, traffic moving in unit train service (including intermodal), and mixed trains providing inbound carload service of selected commodities susceptible to transloading from rail car to truck for final delivery.
- There is a willingness to handle miscellaneous carload traffic as long as it moves within the confines of the local service and does not require either incremental investments or changes in other services.

Relevant Rail Industry Trends

Use of contractors

- Both BNSF and UP recognize an opportunity to subcontract for local service to industry on branch lines and mainlines when the expected cost is high to the Class I but potentially attractive to a contractor with a different operating model.
- Some contracting is occurring on both systems, and regional operating personnel are alert to further opportunities. To combine such subcontracting with an opportunity to provide a new local, short-haul service, however, is an extension of the concept not yet commonly implemented.
- To the extent that acceptance and accommodation could be encouraged would open an opportunity for a new type of local rail service not available in the SCAG region, particularly in the inner core of the LA Basin.

Sales and abandonment of rights of way

- Both the BNSF and the UP have completed their planned sales of lines.
- It is believed that there are few if any lines in the LA Basin that are candidates for voluntary sale or abandonment.
- Neither railroad tends to retain rights to abandoned rights of way for possible, future expansion of rail service.

Cooperation with short line railroads

- Both the BNSF and the UP have a history of favorable relationships with shortline companies.

Passenger Rail "Conflicts"

- In addition to the freight operations a large number of daily passenger trains are operated in the region by Metrolink on a combination of tracks owned by the Southern California Regional Rail Authority (SCRRA) or on the freight railroads under trackage rights arrangements. While these passenger trains operate primarily during the morning and evening commuter hours they compete for available track space. This additional passenger traffic limits the ability of the rail infrastructure to host increasing numbers of freight trains in the future.
- Part of the problem is that freight and passenger operations may not easily be integrated. Passenger service is designed to move large numbers of people and trains on tightly controlled schedules during specific time periods, primarily the commuting hours. This usually entails a number of stops and starts at a number of intermediate stations along a given route.
- Freight service, on the other hand, generally operates nonstop from the origin point to destination, or an intermediate destination, but in any event, without the starts and stops associated with the commuter operation and on the same tracks. A second aspect of the freight operation and service is that some of it may also be scheduled, in particular the intermodal traffic. This service is usually long haul, between LA and Chicago for example, where customers require their shipments to be delivered by a specific time. Hence departure times are to a large extent determined by the delivery requirements, e.g. UPS. Service schedules cannot be easily changed to accommodate the passenger operation.

Capacity and Traffic Growth

- There are no detailed public data on the present or expected usage and performance of the private rail system. Further the expected usage and performance is dependent on the commercial decisions made by the two companies.
- It is generally believed that the expected growth in rail intermodal service, primarily due to the projections for increased imports at the Ports of Los Angeles and Long Beach, will fill the existing capacity of both railroads within the LA Basin sometime before 2025. Hence, both companies face major decisions about the nature of the shipments that they will attempt to secure based on their individual service design plans and ability to raise capital to expand capacity.
- In general the routes in the LA basin used by both services are 40 to 50 MPH tracks for freight, and higher for passenger. What may be required on these heavy service routes is construction of additional main tracks in order to increase capacity. In part this is already being planned for the segment of the BNSF between the LAUPT connection and Fullerton Junction, with new third and fourth main tracks to be added with construction completion scheduled for early 2003.
- For example, the BNSF Cajon route east from San Bernardino currently hosts 90-95 train movements daily. If continued annual growth is conservatively estimated at three percent annually for the next five years, about three trains a day will be added on this route alone each year, or upwards of 110-115 a day or more, in the out years. While the railroad personnel say that they have operated as many as 115 trains a day this has been in emergencies or under short term conditions. They also say that capacity can do some extent be created by operating longer trains. This can be the case on the lower grade portions. On the heavy mountain grades, however, this is a more limited option.

International Traffic Growth

- The ports of Long Beach and Los Angeles are very dependent on landside intermodal connectors. Both are immediately contiguous to major freeways with substantial congestion. Both are in and near areas in the LA Basin that have projections for substantial increases in population, employment and land use in trade and transportation industries.
  - Cargo volumes are forecast to triple by 2025
  - The effect of “on-dock” rail facilities and their direct connection to the Alameda Corridor will mature.
  - The Ports will spend $6 billion on their facilities including the portion of the rail and highway access that they control.
- The growth in international intermodal traffic will be the major source of pressure on rail infrastructure, capacity, and operations.

Capital for expansion

- Railroad rights of way are private property usually owned by the railroad that operates on the line. In a few instances, the rights of way are owned by other entities. In the case of the SCAG region, Metrolink owns some right of way, as does the San Jacinto Branch Line, which is owned by Riverside County.
- As private property, the capital necessary to maintain, expand or contract the system is discretionary with the owner. In the SCAG region, due to economic growth, particularly imports through the Ports of Los Angeles and Long Beach, the BNSF and the UP have a history of keeping the mainline in excellent condition, slowly abandoning many branch and local service lines, rapidly expanding intermodal facilities, and encouraging private capital investments in transload facilities on the mainlines. These decisions are driven by commercial considerations and corporate capital allocation processes. Both of these are outside of the control of SCAG.
- The Alameda Corridor and the Alameda Corridor East projects included in the 2001 RTP are two of the most significant current investments of public-private capital to improve rail right of way in the U.S. Both projects have very attractive characteristics for improving mobility on arterials and local streets crossed by the rail lines. There are possibilities for additional cooperative efforts in the SCAG region, but none are included in the 2001 RTP. There is one additional study just commencing that proposes to study the need/opportunity to reserve additional lands for expansion purposes through Cajon Pass on I-15 and the mainlines of both the BNSF and the UP.

Corridor designation and preservation

The 2001 RTP introduced a powerful concept – that of corridor preservation.

- There is an opportunity to identify and catalog all prior and existing railroad rights of way and to preserve them for future expansion of services requiring some kind of right of way, including heavy freight rail.
- Of particular interest would be two types of freight rail rights of way. The first is existing branch and local service lines. The second is previous branch and local service lines that have been abandoned but are in position to be reactivated. Future usage of these could be controlled to allow restoration to rail service.
- Subject to the final physical layout of the Alameda Corridor and the Alameda Corridor East, there is an opportunity to preserve for local rail service the surface level local rail and sidings that parallel these projects so that local industry continues to be able to access rail service. These routes are particularly important to any future diversion of shipments from truck to rail, as they are in the heart of the geographical area where the greatest congestion is expected on the highway system and where the land use is already zoned for industrial and commercial usage.

Modal Diversion Potential

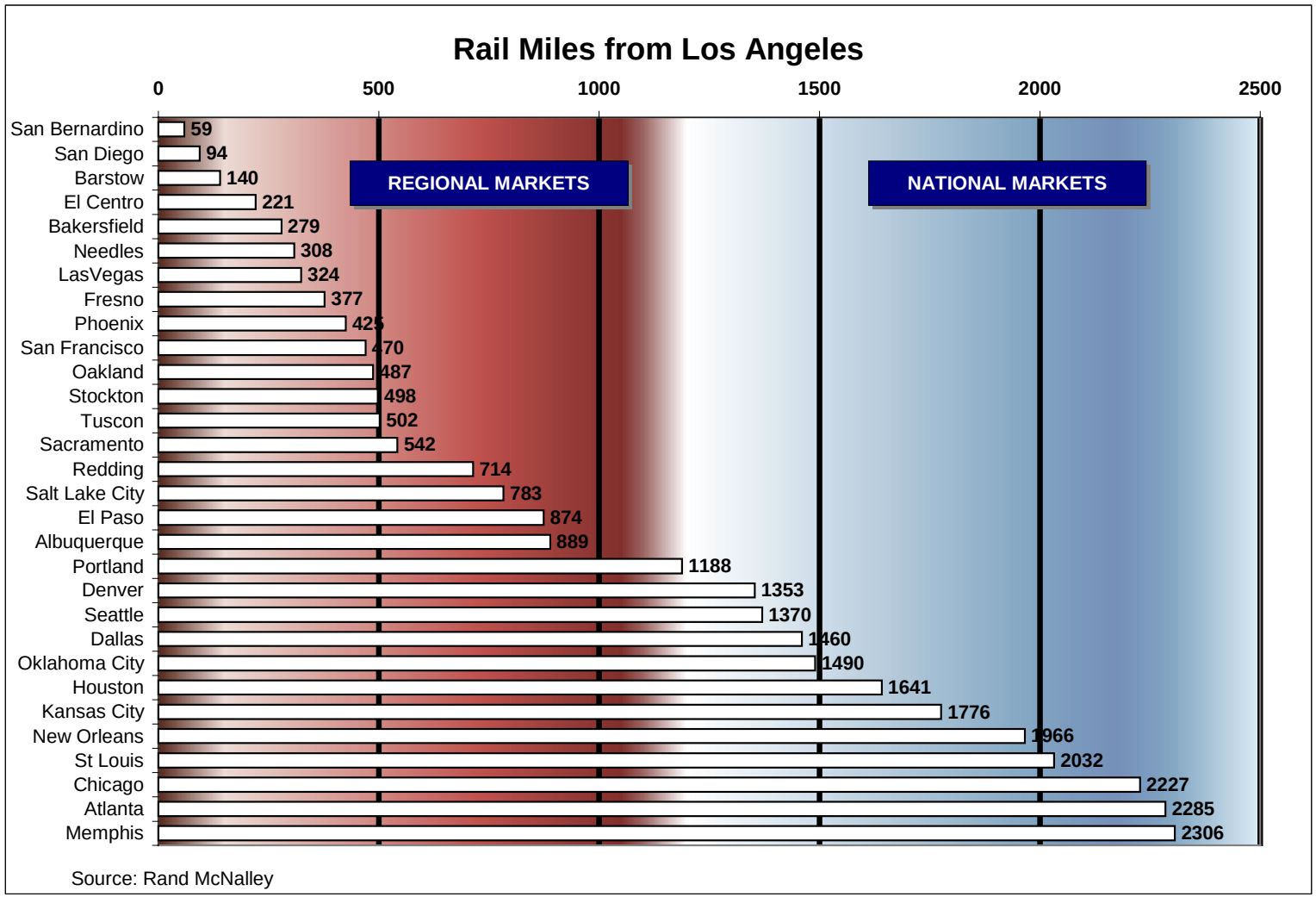
- The trucking industry is facing difficult times in Southern California and elsewhere.
- Increased carload rail service would reduce congestion but has practical limits.
  - Well-designed short-haul rail moves can serve niche markets.
  - "Short-line" rail operators are sometimes, but not always, successful in increasing carload traffic on the lines they operate.
- Truck-rail transloading has significant potential to increase the use of rail carload service for line-haul freight transportation.
- Intermodal transportation also has significant potential to mitigate congestion on major interregional access routes, but would not reduce local trips in the central region.

Short-haul rail carload service potential

- Well-designed short-haul rail moves can serve niche markets, especially where they can either justify a new train move or add incremental traffic to an existing train.
  - There are already many rail movements within California.
  - The 500-1000 mile trip range, however, does not include large new freight markets outside California.
- Typical short-haul rail carload movements include regional transfers of bulk materials (e.g. sand & gravel, chemicals), and inter-plant moves as part of a production process.
- There are three major barriers to expanded short-haul carload service:
  - Local switching moves are relatively costly, especially for large, line-haul railroads with high labor costs. Such moves also generate significantly higher emissions than line-haul rail trips.
  - Neither the revenue and profit potential for the railroad nor the cost savings potential for the customer are likely to justify the high cost of new trackage where sidings do not exist.
  - The lower revenue and profit potential of short-haul movements also make it difficult for line-haul railroads to devote scarce track capacity or operating "slots" to such traffic if longer-haul moves are available.
- The lower-cost operations of short-line and switching railroads such as Pacific Harbor Line or the Ventura County Railway offer a solution to high switching costs, but also require an additional interchange movement and revenue sharing.
- Rail-truck transloading, discussed extensively elsewhere in this report, offers a way around the access problem.
- The allocation of scarce track capacity is a tougher problem, and a major long-term public policy issue.

Rail Miles to Major Markets

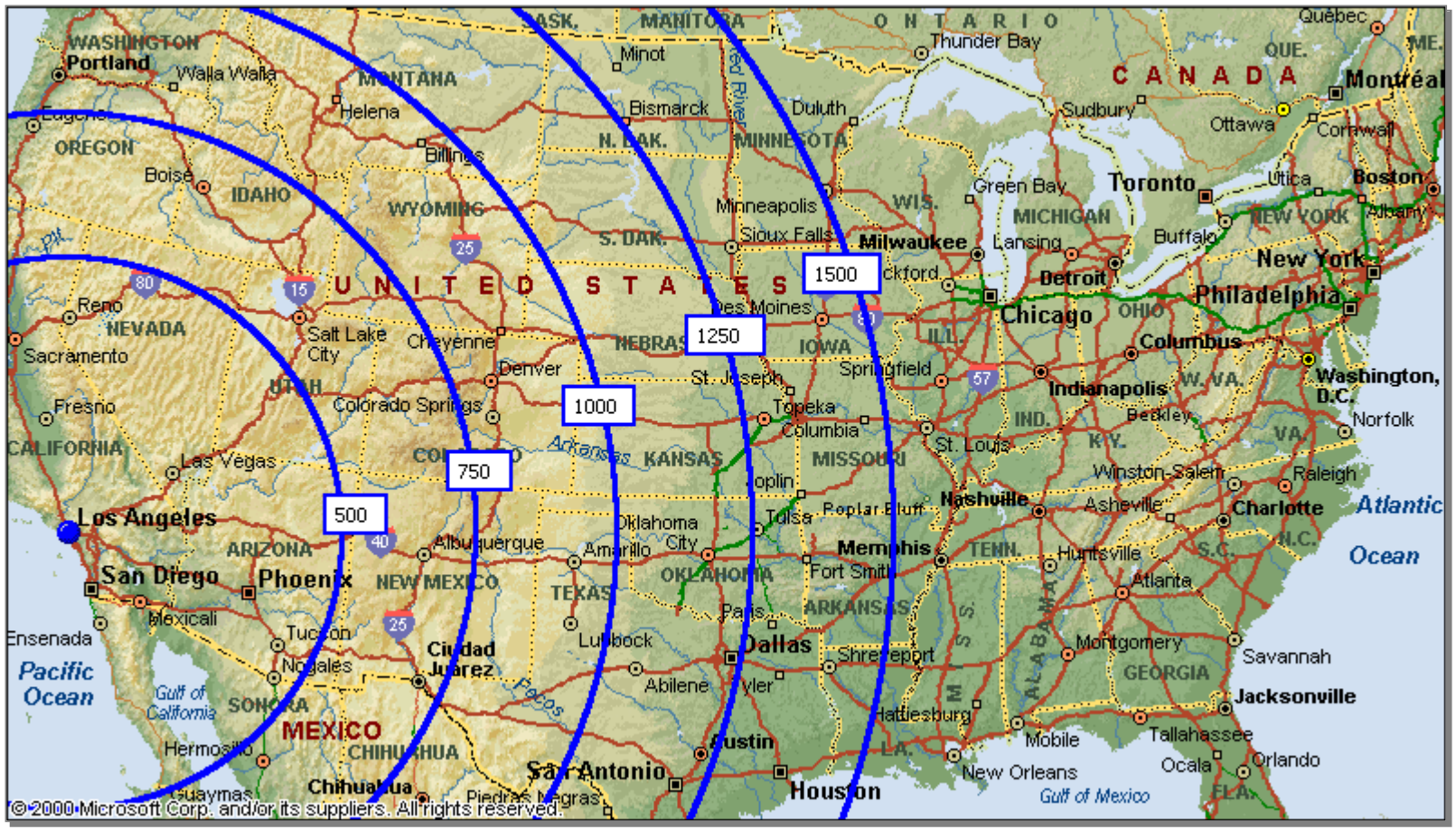
Exhibit 93: Rail Miles to Major Markets



Source: Rand McNalley

Rail Miles to Major Markets

Exhibit 94: Rail Miles From Los Angeles



Short-line rail potential

- Short-line operators can often provide local switching and industrial service at lower costs than line-haul carriers.
- "Short-line" rail operators are often successful in increasing carload traffic on the lines they operate. Key factors in short-line success include:
  - Creative use of rail assets and infrastructure, such as transloading operations
  - Realistic market assessment and adequate long-term traffic potential
  - Good working relationships with line-haul railroad connections
  - Responsiveness to customers
- The potential for short-line operations in the SCAG region could include:
  - Existing short line operations such as PHL, VCY, and Los Angeles Junction
  - A few existing branch lines, such as the San Jacinto Brach Line
  - Service to major new industrial parks and plants
- The long-term potential for greater short-line rail service in the SCAG region is limited:
  - UP and BNSF have largely completed their branch line abandonment and rationalization programs, and there are few branch lines left that would be suitable for short-line operations
  - Railroad branch lines and secondary main lines are attractive candidates for high-priority rail passenger and commuter services such as Metrolink.

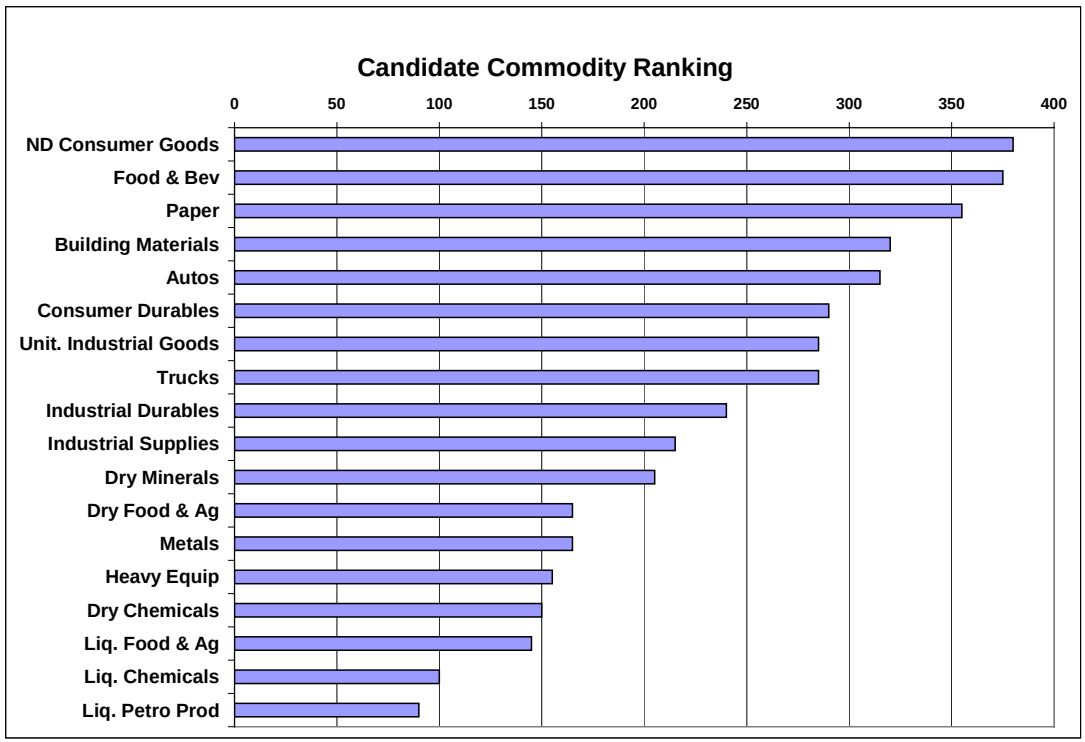
Truck- rail transload potential

- Truck-rail transloading has significant potential to increase the use of rail carload service for line-haul freight transportation.
  - Truck-rail transloading offers the easiest access to rail carload service.
  - Both major railroads see transloading as a business opportunity and a source of traffic growth. Sometimes railroads use transloading to compete with other railroads instead of with trucks.
  - Short lines such as PHL have developed transloading programs and facilities to expand their market
- Transloading is not without its limitations, however:
  - Transloading may be seen as an undesirable land use by local communities.
  - Truck-rail transloading requires local/regional pick-up and delivery via truck, and is adversely affected by regional highway congestion.
  - Truck-rail transloading would reduce long-haul truck traffic on major regional access routes, but would not reduce the number of local truck trips.

Candidate Transload Commodities

- A recent private Southern California study ranked commodities as candidates for transloading with the results shown below. The criteria included revenue potential, employment potential, and environmental "friendliness." The top two commodity choices, consumer goods and foods and beverages, are not so often transloaded without intermediate storage in distribution center inventory. Other candidates such as paper, building materials, and minerals are commonly transloaded in both private and commercial facilities.

Exhibit 95: Candidate Transload Commodities



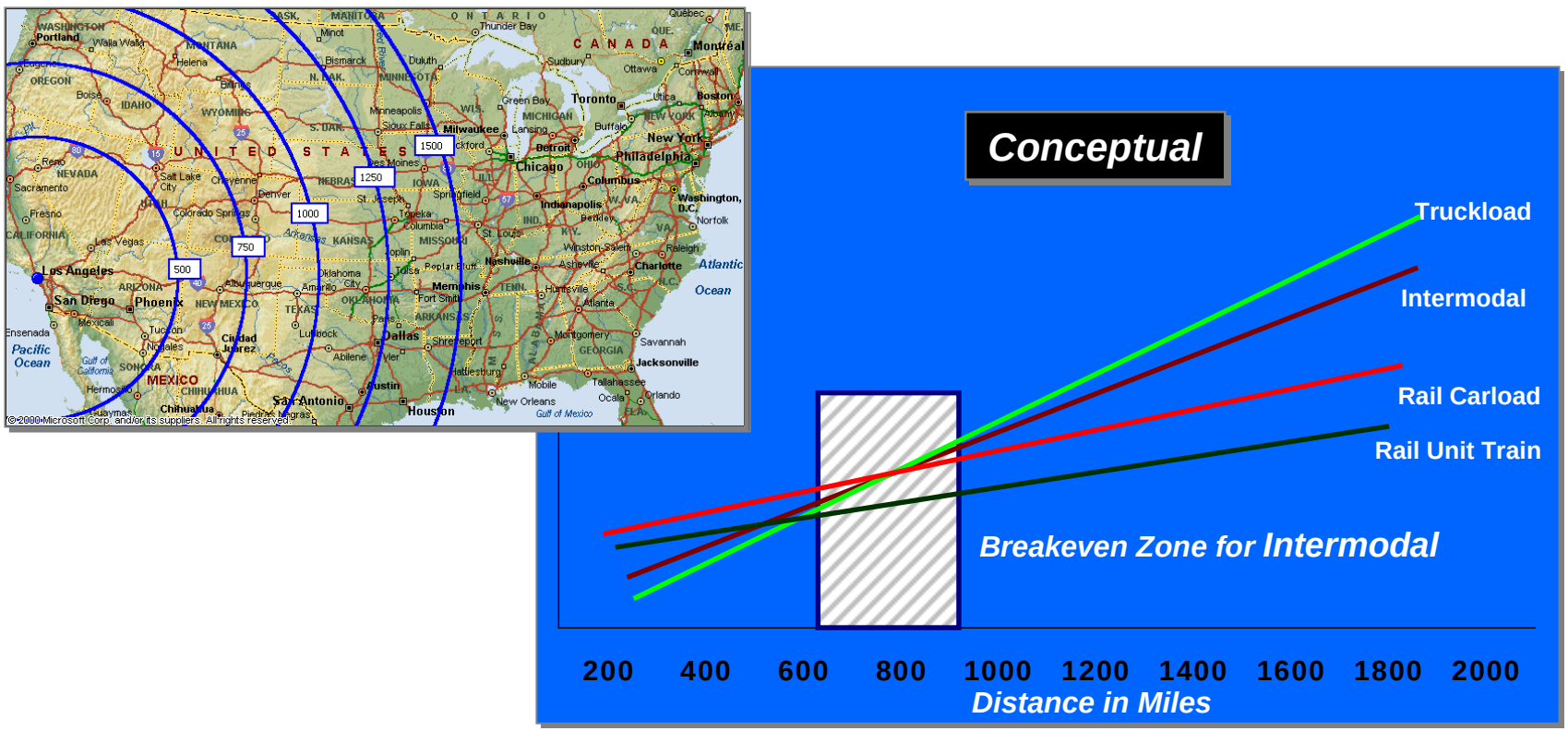
Intermodal Potential

- Intermodal transportation has significant potential to mitigate congestion on major interregional access routes.
  - Rail-truck intermodal service offers the easiest transition from over-the-highway truck transportation.
  - Major truckload, less-than-truckload,a and parcel motor carriers already use intermodal service and see it as a growth area.
  - The SCAG region has excellent intermodal service with adequate near-term capacity.
- Intermodal service, however, requires local/regional pick-up and delivery via truck (drayage), and is adversely affected by regional highway congestion.
- Diversion of freight to intermodal service would reduce long-haul truck traffic on major regional access routes, but would not reduce local trips.

Shorter Intermodal Markets

- Typical “breakeven” mileage for intermodal is 600-900 miles.
- Reducing the “breakeven” distance from Southern California does not gain access to any large new markets, but could be the key to diversion of traffic between Northern and Southern California along I-5.

Exhibit 96: Intermodal Market Reach



Short-Haul Intermodal Potential

- If it is managed effectively, intermodal transportation can be successful at distances of under 300 miles.
- Tioga facilitated a panel discussion on short-haul intermodal operations at a recent industry conference. Three successful case studies were examined.
  - CH Robinson Rail Division. Intermodal operations on regional railroad Iowa Interstate managed by IRG Transportation, a division of CH Robinson Worldwide (a major Intermodal Marketing Company).
  - Triple Crown. Triple Crown is a subsidiary of Norfolk Southern that operates a RoadRailer network in the eastern states
  - CP Expressway. CP Expressway is a part of Canadian Pacific (CP North America) that operates “Iron Highway” cars between Montreal, Toronto, and Detroit
  - Amtrak Mail and Express. Amtrak’s Mail and Express division handles postal services, small package, and express freight shipments using baggage cars, special boxcars,a and RoadRailers on Amtrak passenger trains.

CH Robinson Rail Division

Triple Crown

CP Expressway

Amtrak Mail & Express

Short-Haul Intermodal Potential

Conventional Wisdom

- The conventional wisdom in the intermodal industry is that the break even distance between truckload motor carrier services and rail intermodal services is 500-750 miles. This view is held so strongly that it could be described as an article of faith for many in the industry.

Vision

- A successful short-haul intermodal operation requires a non-traditional vision aimed at freight moving over the road. Short-haul intermodal is an entirely different service than the transcontinental, lane-oriented double-stack service Short-haul advocates are working against traditional railroad culture, much in the same way as the founders of intermodal rail services were

Economics

- As short haul margins are relatively small, volume must be correspondingly large in order to make the enterprise financially rewarding. There is much more freight in the short haul market, however, than in the traditional long haul rail intermodal market. Margins are smaller, so assets must be intensely managed to produce a satisfactory return
  - Marketing plan is smart and focused
  - Operation/Equipment utilization is managed as network
  - Terminals are smaller, cheaper, faster, and well located
  - Drayage is minimized

Short-Haul Intermodal Terminal and Drayage Requirements

- Fast terminals (turn time 15 min or less) are characteristic of successful short-haul intermodal operations. In general this means that:
  - The short haul business can not tolerate the large, congested, slow, and expensive terminals presently serving the transcontinental unit trains
  - Terminals are relatively faster, smaller, and lower volume operations (100,000 units or less)
  - Terminals are simpler, cheaper, less environmentally intrusive, and more likely to qualify for public investment
- Drayage costs must be minimized
  - Drayage is relatively more expensive than rail line haul in general
  - In the the short haul market where rail line haul miles are low, drayage becomes a more significant cost element
  - The fast terminal turn time for draymen keeps cost low
  - The smaller, less costly terminals associated with the short haul business can be located near customer clusters to keep drayage distances low

Short-Haul Intermodal Operations and Marketing

Each successful case study involved managing networks rather than lanes.

- Network operations and profitability rather than lane by lane operations and profitability
- Triangulation to achieve balance
- Mutually supporting terminal points

In each case, intense equipment management was viewed as both cost effective and essential. There was no single approach to equipment technology.

- C.H. Robinson is using 53' trailers on conventional rail cars
- Amtrak is using RoadRailers and special box cars
- Triple Crown is using RoadRailers
- CP Expressway is using a special, efficient circus-loading flat car and highway standard, non-reinforced trailers

Each successful operation had a clearly defined, specific market focus

- AMTRAK -- Premium service at a premium price for USPS and Perishable shippers
- C.H. Robinson -- Geographical focus on shippers in central Iowa along Route I-80
- Triple Crown -- Initially focused on the Midwest market for the auto industry, now expanding and broadening its truckload motor carrier market.
- CP Expressway -- Exclusively truckload motor carriers in the Montreal/Toronto/Detroit corridor

High frequency is not currently a part of any of these operations. CP Expressway, however, ultimately plans to increase frequency up to one train per hour in the Chicago, Detroit, Toronto, Montreal, New York market.

Value added services contribute to the successful operations.

- Amtrak provides logistics services to the Post Office up to and including sorting mail on the train
- CP Expressway and Triple Crown use their data systems to differentiate